Pacific Health Bulletin

Navy Environmental & Preventive Medicine Unit No. Six Edition **April 1994**

Navy Forward Deployable Lab

NEPMU 6 Takes FDL on Maiden Voyage to Cobra Gold '94

A prototype Navy Forward Deployable Lab (FDL) is finally taking off this year. Look for us in Thailand at Cobra Gold '94. We'll be next to 3rd Marine Medical Brigade Collecting and Clearing Company in Chon Buri, ready to serve your epidemiologic and infectious disease needs.

NEPMU 6's FDL Team
(L. to R.) LT Kirschner, HMC Eslava and LCDR May

What's so great about an FDL? Is it really something the Navy and Marines need? Is it really "deplorable" as the computer spell checker keeps insisting? To gain a better understanding, we need only look back on Operations Desert Shield/ Desert Storm and Restore Hope.

During Operations Desert Shield/Desert Storm the Navy Forward Lab (NFL) was the special in-theater lab providing infectious disease diagnosis and biological warfare surveillance and diagnostic support. The (NFL) was primarily a Naval Medical Research and Development Command (NMRDC) endeavor which also supported medical threat assessment and public health assistance. Pre-deployment preparation included the NMRDC contingency plan to support operational forces, Naval Medical Research Unit No. 3 (Cairo) strategies to combat disease threats in the Middle East, and NEPMU 7 (Naples) surveillance of reported diseases in the area. The NFL, however, was developed during the crisis in the Persian Gulf and many important aspects of its operation and mission were unknown or unforseen, requiring numerous adjustments.

NFL personnel and technical support were able to provide a tremendous variety of state of the art diagnostic and public health capabilities. Working separately but cooperatively, Navy Epidemiologist, CDR Kevin Hanson developed and put into use a system for providing real-time medical surveillance and preventive medicine assistance based on examining weekly rates of sick call visits for different disease categories.

The NFL and Navy Epidemiology proved their worth by providing early and accurate etiologic diagnosis of diarrheas, febrile and acute respiratory illnesses, unraveling and eliminating a mission-degrading outbreak of antibiotic-resistant shigellosis, and serving as the only definitive, theater-wide asset for biological warfare analysis.

Using lessons learned from Desert Shield/Storm, Operation Restore Hope's Task Force Surgeon called on his Preventive Medicine Officer (CDR Kevin Hanson, again) to combine the disciplines of medical microbiology and epidemiology. A Joint Forward Lab and a disease surveillance team were both deployed to Somalia for Operation Restore Hope.

Accurate and rapid diagnosis of disease by the Joint Forward Lab during outbreaks of malaria, dengue, and diarrhea resulted in timely and appropriate referral and treatment of patients, accurate assessment of the infectious disease threat, and effective preventive medicine interventions. Combined with traditional preventive medicine countermeasures: (1) sufficient, safe water and food, (2) field sanitation, (3) immunizations, (4) malaria chemo-prophylaxis and personal protective measures, (5) anticipation of disease threats and active surveillance to identify problems early, and (6) keeping commanders informed of threats and countermeasures, operational forces experienced record low disease rates in Somalia.

The new FDL concept provides mission ready equipment and personnel who can establish a disease surveillance program early in a deployment, linked to an in-theater lab with rapid diagnostic capability and technologic expertise. The number of

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personnel, amount of equipment, and specific diagnostic capabilities of the FDL are based on specific mission requirements, the size of the operation, and its location. Minimum staffing includes an epidemiologist, microbiologist, and lab tech, while minimum diagnostic capabilities include diarrheal disease, endemic arboviral infections, and malaria.

The Navy Bureau of Medicine and the CINCs are convinced of the value of this combined diagnostic and epidemiologic approach toward preserving our fighting strength and have given the FDL concept their support. As a pilot project, the FDL is being fielded in Cobra Gold by NEPMU 6 rather than by other Navy Medicine assets, because direct preventive medicine support of operational forces is central to the mission of all NEPMUs. NAMRU-2 Jakarta will augment this year's FDL team to field-test a rapid diagnotic test for diarrheas caused by *Campylobacter jejuni*, known to cause significant illness in previous operations; AFRIMS Bangkok will also assist by providing some gold-standard tests for some organisms. In the future, NMRDC assets will be called upon to augment the FDL each time their specialized technology or expertise is needed.

The basic disease surveillance mechanism has been endorsed by the Joint Chiefs of Staff for use in all joint operations and consists of a brief medical report. This report is sent weekly to the JTF Preventive Medicine Officer (PMO) from each unit seeing patients in a clinic, aid station, or unit sick call. These weekly surveillance reports, combined with other FDL data, allow the JTF PMO to monitor rates of illness, investigate cases epidemiologically, provide pro-active assistance, and give immediate feedback to medical personnel, units, and field commanders.

When the Navy medicine team has the tools it needs and the support of operational commanders, we can keep our sailors, Marines, soldiers, and airmen fit to fight!

LCDR L. May, MC, USN, Epidemiologist

Prospective Authors:

Interested in contributing to the PHB? See page 8 for more information.

DON'T LET THOSE BUGS BUG YOU!

Past military conflicts have demonstrated that mission capability is diminished more by disease and non-battle injuries (DNBIs) than by actual combat. This lesson is recognized by many experienced in military operations, but the point must be emphasized repeatedly. The three major medical threats which are likely to produce high rates of field "casualties" are: febrile illnesses, diarrhea, and skin disorders. This is as true in a humanitarian assistance scenario as it is in a combat situation. The list of diseases includes such widely divergent illnesses as dengue fever, cellulitis, sandfly fever, bacterial diarrhea and heat injury. Infections transmitted to man by arthropods (disease vectors) pose the greatest impact. Malaria is the classic insect-borne disease in this regard.

The number of DNBIs experienced by American military personnel during wars stretching from the Revolutionary War to Desert Shield/Desert Storm is impressive. One account reports that among soldiers fighting in Burma during WWII, the attack rate of malaria was 400 percent. In other words, a single soldier in Burma during a single year would likely experience four separate cases of malaria. For every soldier evacuated for battle injury, 120 were evacuated because of illness (mainly malaria). Similarly, there were outbreaks of Japanese encephalitis (JE) among American troops during the Korean conflict, and malaria and dengue incapacitated huge numbers of our fighting forces during the Vietnam conflict. Most recently, there have been 270 cases of malaria reported in military members participating in the humanitarian effort in Somalia.

Personal protection from the bites of arthropods is the principal countermeasure against these diseases. Any other protective measure is a backup. Obtaining proper supplies such as repellent and netting as well as supervising the correct use of these materials is the essence of the personal protection preventive program. In the case of some insect-borne infections, there are immunizations and/or prophylactic medications which reduce the risk of active infection. These back-up aids are just that. They are meant to **BACK UP** the measures designed to prevent insect bites. No immunization is 100 percent effective; for example, a recipient of the JE vaccine may not develop sufficient antibodies to protect

NEPMU-6 Training in Yokosuka

29 July - 19 August 1994

NEPMU-6 will be conducting a series of safety, occupational health and preventive medicine courses at NAVHOSP Yokosuka Japan from 29 July 1994 to 19 August 1994. The courses will be held at NAVHOSP Yokosuka, OH/PM Directorate, BLDG E-22, second floor. The following is a summary of course **DATES**, TITLES, and *QUOTA RESPONSIBILITY*.

29 July 1994 - Navy Respiratory Protection Program Manger (NRPPM) Refresher *NEPMU-6 Training Department*

01 - 04 August 1994 - PMT/IDC Training (16 topics to be covered) *NAVHOSP Yokosuka OH/PM Directorate*

08 - 12 August 1994 - NAVOSH Manager Training *NAVHOSP Yokosuka Safety Manger*

10 - 12 August 1994 - NIOSH Spirometry *NAVHOSP Yokosuka OH/PM Directorate*

15 - 19 August 1994 - Navy Respiratory Protection Program Manger (NRPPM) Certification *NEPMU-6 Training Department*

There is no cost for any of the courses. A copy of the course description, target audience, and quota request requirement may be obtained either from NAVHOPS Yokosuka JA OH/PM Directorate (DSN: 243-7521) or NEPMU-6 Training Department (DSN: 471-9505).

against infection. Prophylactic medications are not a guarantee either; the malaria parasite can at times, devise ways to "get around" the effects of anti-malarial medications. This point is a high priority. For any program designed to inhibit vector-borne disease, the primary preventive strategy is to avoid bites of the insect vector.

We must be vigilant and convince line commanders of the critical importance of this idea. The authority to enforce policy and implement programs lies with the commander. It is imperative, therefore, that medical personnel inform, recommend, and convince the command structure of the importance of support and enforcement of disease countermeasures.

Reducing Man-Vector Contact

We've come a long way since man slept under his fishing net and burned animal dung to keep mosquitos away. The origins of modern repellents and mechanical barriers reach far back into our past. Tens of thousands of organic compounds have been screened by scientists for repellent effects against blood-sucking insects. A systematic search was conducted during the Second World War. Prior to that time the aromatic oils used as repellents were very short acting (1 or 2 hours). The blend of chemicals known as the "6-2-2 mixture," devised by the Bureau of Entomology in Florida during the Forties, was an improved formulation that worked against a wide range of insects.

"We've come a long way since man slept under his fishing net and burned animal dung to keep mosquitos away."

DEET (diethyl-m-toluamide), discovered in the 1950s, was among several chemicals found more effective than the earlier formulations. Considering toxicity, effectiveness, and other factors, DEET has become the mainstay of insect repellents.

Specific Personal Protective Measures

Again, we emphasize that the main preventive strategy for arthropod transmitted illnesses is to avoid insect bites. In field settings, command structure should insure each of the following:

(1) Application of Insect/Arthropod Repellent Lotion (NSN 6840-01-284-3982) on all exposed skin. Under ideal conditions the application probably works for 12 hours. Most personnel will be living under less than ideal conditions (heavy sweating, rain, and friction will remove lotion from skin); if mosquitos are noted to be biting, apply more lotion. Issue two tubes prior to deployment and instruct all personnel on proper use. Directions on the tube of lotion are specific regarding the amount to apply for different surfaces.

(2) Minimize exposed skin, especially at night. Uniform sleeves should be rolled down, even under hot/humid conditions. The untreated BDU fabric offers a high level of protection against penetration by blood-sucking insects such as mosquitos.

(3) Camouflage uniforms should be treated with permethrin aerosol repellent spray, 0.5 per cent (NSN 6840-01-278-1336). Follow label directions carefully. This treatment can remain effective through four or five washings. An alternative and a longer lasting treatment is the Insect/Arthropod Repellent Fabric Treatment formulation, 40 percent (NSN 6840-01-334-2666) for application by certified personnel only. This treatment is effective for the life of the fabric.

(4) Personnel MUST be protected from bites while sleeping. Bednets (NSN 7210-00-266-9736) should be used whenever feasible. Nets should be treated with permethrin as should the inner surface of tents.

(5) DEET treated jackets (NSN 8415-01-035-0847) and headnets (NSN 8415-00-935-3130) should be used to the fullest extent possible.

The Complete DOD Command Program for personal protection consists of PROPER use of repellent containing DEET on exposed skin, PROPER treatment and wearing of uniforms, and PROPER treatment and use of bed netting. Personnel at risk must be thoroughly briefed on these measures; it must be practiced by every level of the command structure and enforced through an integrated command program.

CDR J. H. Trosper, MSC, USN, Entomologist
CDR R. P. Williams, MC, USN, Epidemiologist

HEAT STRESS NOTES

Summer is rapidly approaching, bringing with it increased occurrence of heat stress and the potential for heat injuries. Heat stress is caused by a combination of environmental and personal factors. Environmental factors include air temperature, humidity, radiant heat and ventilation. Personal factors include work load, physical condition, alcohol consumption, nutritional status, acclimatization, cumulative fatigue and accumulated body heat storage.

Definitions

Heat injuries vary in severity from localized skin eruptions to life-threatening systemic collapse. Common examples and treatments are described below:

a. **Heat rash**: A red, itchy, raised rash. This rash disrupts sweating and inhibits proper cooling of the body. Individuals experiencing this condition, should wear loose clothing around the affected area, keep the area clean and use powder to keep it dry.

b. **Heat cramps**: Usually felt in the stomach or legs. The cramps are caused by excessive sweating without replenishment of salt, leading to an electrolyte imbalance. The skin will feel cool and moist, and may be accompanied by a rise in core temperature. Massaging the cramping muscle, analgesics for the pain, and salting food to taste will help resolve the cramping.

c. **Heat exhaustion**: The collapse of the peripheral vascular system is caused by excessive loss of both salt and water due to excessive sweating and dehydration. The pulse is rapid and weak, and skin is cool, pale and moist. Arms and legs will feel weak and tingly; dizziness, nausea

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From the S. E. A.

Want to increase your preventive medicine knowledge and your promotion potential at the same time? The U.S. Army publishes a catalog of correspondence courses that includes a lengthy listing of public health courses ideally suited to our field. Most are presented at the level of PMT school, but many go a few steps beyond. Have your ESO request a copy from:

Director of Admissions
Academy of Health Sciences
Fort Sam Houston, TX 78234-6100
1-800-531-1114 ext 15877

Typical course packages, which include a number of sub-courses, cover Veterinary Food Inspection Specialist, Preventive Medicine Specialist and even Special Operations Medical Sergeant. Specific sub-courses include Field Sanitation, STD's, Military Water Supply, Diseases of Military Importance, Environmental Injuries, and many more.

HMCS B. Supalla, Senior Enlisted Advisor

What's New?

1. BUMED INSTRUCTION 6224.8 Change Transmittal 1.

2. 1993 STD Treatment Guidelines - This should replace the 1991 version. Changes include a medication dosage reduction for uncomplicated gonococcal infections. To order a copy, call CDC at (404) 639-1819. You'll reach a voice message service that will record your name and mailing address. Allow 4-6 weeks for delivery. Reference is BUMED MSG DTG 130024Z JAN 94.

3. Look for BUMED to come out with a revised Disease Alert Report instruction in the near future.

HM1 C. Stringer, Epidemiology Department

Heat Stress, Continued from page 3

and vomiting may be experienced. Blood pressure will be elevated. Oral temperature may be normal or below normal while the core temperature is elevated, between 99.5^{0}F and 101.5^{0}F. Recovery is achieved by resting in a cool place and drinking plenty of water.

d. **Heat stroke**: The body's cooling system shuts down completely. This condition is a MEDICAL EMERGENCY and treatment should begin immediately. Symptoms include headache, hot and dry flushed skin, oral temperature will be elevated and body core temperature will be above 106^{0}F. The individual may experience some mental changes such as confusion, convulsions, loss of consciousness, and coma; death will follow if treatment is delayed. First priority for treatment is to work on getting the body temperature down as quickly as possible. This can be done by immersing in water, sprinkling with water and fanning, and massaging legs and arms to improve peripheral circulation. If conscious, attempt to give water orally. Removal of clothes may be necessary. Transport to a medical facility as quickly as possible while still cooling body down.

Prevention

Prevention is the best defense against heat stress and preparation is the key to prevention. All individuals can play a crucial role in the prevention of heat stress by following these guidelines:

a. Drink water regularly, do not wait until you "feel" thirsty. If the heat index is above 80^{0}F, drink at least 8-10 quarts of water per day when performing light work. When performing heavy work drink at least 13-19 quarts of water per day.

b. Keep in good condition by eating three balanced meals a day, salting food to taste.

c. Exercise to keep the cardiovascular system strong and healthy. A well conditioned body will tolerate heat stress better.

d. Sleep at least six hours each day to allow the body adequate time to rest and rejuvenate.

e. Wear loose-fitting, clean and unstarched clothing. Light colored cotton is best when exposed to the sun because light colors reflect the heat and cotton allows for proper ventilation.

f. DO NOT DRINK ALCOHOL; it accelerates dehydration and increases the risk of heat related injuries.

g. Prior to excessive physical activity, become acclimated to the environment; this usually requires 2 to 3 weeks.

The following table is from NAVMED P-5010 Chapter 3 (Ventilation and Thermal Stress Ashore and Afloat.) Use the WBGT index and heat condition flags as a guide for setting PT limits.

WBGT Index [F]	Flag Color	Intensity of Physical Exercise
Less than 82	Blue	Extremely intense physical exertion may precipitate heat exhaustion or heat stroke, therefore, caution should be taken
82 to 84.9	Green	Discretion required in planning heavy exercise for unseasoned personnel. This is a marginal heat stress limit for all personnel
85 to 87.9	Amber	Strenuous exercise and activity (e.g., close order drill) should be curtailed for new and unseasoned personnel during the first 3 weeks of heat exposure.
88 to 88.9	Red	Strenuous exercise curtailed for all personnel with less than 12 weeks training in hot weather.
90 and above	Black	Physical training and strenuous exercise suspended for all personnel (excludes operational committment not for training purposes).

Further information about afloat heat stress can be found in OPNAVINST 5100.19B chapter B2, OPNAVINST 5100.20C and NAVMED P-5010 Chapter 3. Ashore commands heat stress standards can be found in NAVMED P-5010 Chapters 3 and 9.

If you follow the simple preventive measures you don't have to become a heat stress victim. Be the victor not the victim.

HM2 R. Glover, Industrial Hygiene Department

SHIP'S FORCE REPLACES DECK COVERING SYSTEM

Exposure Investigation During Vinyl-Asbestos Floor Tile and Crystalline Silica (Quartz) Underlayment Removal

Recently NEPMU 6 Industrial Hygiene Department provided assistance to an "asbestos-free" Spruance-Class Destroyer (DD) during a shipyard overhaul. Work place evaluations for asbestos and silica (quartz), including air monitoring, were conducted during the removal of floor tile and underlayment throughout the ship. This article reviews regulations, actions and lessons learned.

Regulation Review

Our first task was to work with the shipyard environmental and occupational safety and health office (Code 106) to determine what regulations applied to the removal of nonfriable asbestos tile. We discovered that the removal of asbestos floor tile is not specifically addressed in either OPNAVINST 5100.19B NAVOSH AFLOAT, OPNAVINST 5100.23C NAVOSH ASHORE or Naval Ships Technical Manual (NSTM), Chapters 634 Deck Covering, and 635 Thermal, Fire and Acoustic Insulation.

The relevant federal regulation (as it applies to ships) is 40 CFR 61, Subpart M, the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP). The term "regulated asbestos-containing material" (RACM) is introduced. The definition quoted below is a list of categories of asbestos containing materials (ACM) that are regulated under the asbestos NESHAP:

> "Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart."

Two categories of nonfriable, "regulated asbestos-containing material" (RACM) are mentioned:

"Category I" nonfriable ACM includes packing materials, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos.

"Category II" nonfriable ACM includes "any material excluding Category I nonfriable ACM, containing more than 1 percent asbestos that when dried, cannot be crumbled, pulverized or reduced to powder by hand pressure."

Vinyl-asbestos floor tile is category I nonfriable ACM. At Pearl Harbor, no EPA notification is required if only asbestos tile is being removed and no friable asbestos (thermal insulation, etc.) is involved. Check your local regulations to see what rules apply in your area.

Our second task was to review the NSTM for safety information concerning silica under-layment. NSTM 634 does not address this stressor. A review of Material Safety Data Sheets for under-layments did list silica sand as an ingredient.

Training

Training was provided to the ship's force on the proper use of respiratory protection (HEPA respirators) and on the health hazards of asbestos and silica (quartz). Our primary concern was silica because while most people are aware that asbestos is a carcinogen, few realize that there are "a number of epidemiological studies which show an increased incidence of lung cancer in workers exposed to silica." Although military personnel will rarely be involved in extensive removal operations, shipyard personnel may be routinely exposed.

Work Procedure

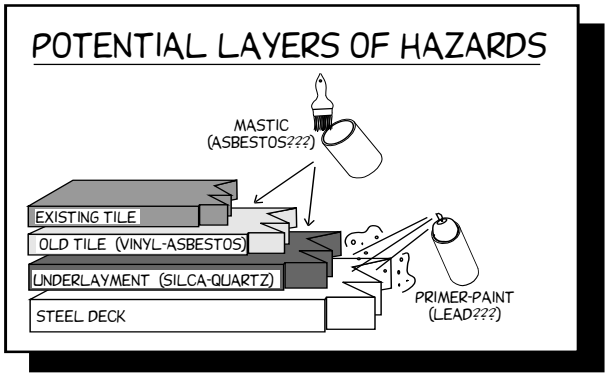
The ship scheduled deck covering removal work between 1630-2300 to minimize interference with other shipyard work being conducted onboard. The hard physical labor involved allowed only four to six hours of actual work per day. The floor tile and its underlayment were wetted down with a light layer of water using buckets and swabs to control dust generated by the breaking of the silica (quartz) underlayment. Floor tiles were then broken by sledge hammers and large crowbars were forced between the metal deck and underlayment. This brought up sheets of tile and underlayment. Areas near cable runs and close to bulkheads required the use of pneumatic tools.

To cleanup, pieces of the loosed tile and underlayment were picked up by hand or pushed into dust pans and dumped into double asbestos-labelled bags held in rigid trash cans.

Sampling Results

Fifteen (15) of eighty-six (86) bulk tile samples taken from the ship contained asbestos. No asbestos was found n the adhesive mastic. Air samples collected for asbestos during deck tile removal were below the medical surveillance action level. A review of the ship's plans showed the primer paint to be formula 150, a green paint which contains no lead ingredients.

Prior to removal operations, the underlayment was analyzed and found to contain sixty-six to sixty-nine percent (66-69%) quartz. Nine of eighteen air samples for respirable silica dust exceeded the action level (0.05 mg/M^3), despite the use of water to control dust. More importantly, eight (8) of these air samples were above the permissible exposure level (PEL) of 0.1 mg/M^3.



Air sampling for respirable silica (quartz) showed workers closest to the work

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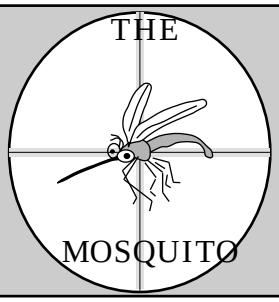
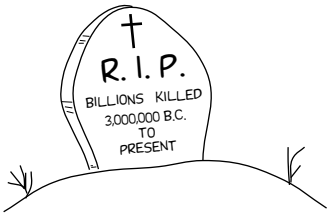
INSECT IN FOCUS



IS NATURE'S NUMBER ONE BIOLOGICAL WARFARE EXPERT WITH MILLIONS OF YEARS OF EXPERIENCE. MOSQUITOS CAN CARRY A LARGE ARSENAL OF INCAPACITATING AND DEADLY DISEASES.

BY HMI WEIGEL - NEPMU 6

1. THROUGHOUT HISTORY, THREE TYPES OF MOSQUITOS HAVE BEEN RESPONSIBLE FOR THE DEATHS OF MORE PEOPLE THAN ANY OTHER VECTOR.



2. BIO ATTACK STEALTH SQUADRON

The "Blood Angels"


AEDES


CULEX


ANOPHELES

FLIGHT RANGE
ANYWHERE FROM 0.5 TO 20 MILES DEPENDING ON VECTOR

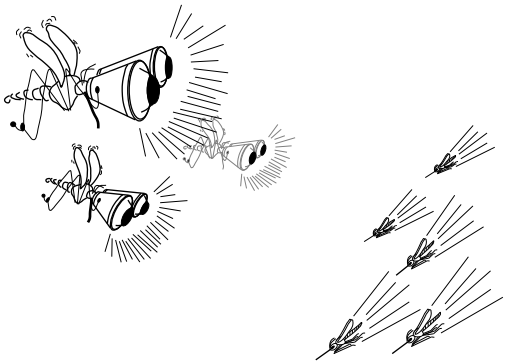
NIGHT OPS
EQUIPPED WITH CARBON DIOXIDE AND HEAT SENSORS CAPABLE OF FINDING PREY IN TOTAL BLACKOUT WITHOUT DETECTION

WEAPONS
MALARIA
YELLOW FEVER
DENGUE FEVER
ENCEPHALITIS
AND MORE!

HOMEPORT
WORLDWIDE DESPITE EXTENSIVE MOSQUITO ERADICATION EFFORTS

AREA OF OPERATIONS
BIO-WARFARE IS PRIMARILY LIMITED TO UNDERDEVELOPED NATIONS, BUT MAY OCCUR ANYWHERE VECTOR IS PRESENT

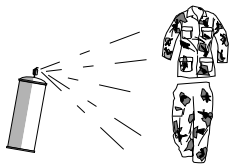
3. THEY HAVE BEEN ON PATROL AND WAGING WAR SINCE THE DAWN OF MAN...



...TODAY, MOSQUITOS CONTINUE TO HINDER US, VIRTUALLY IGNORING OUR VAST RESOURCES OF CHEMICALS AND MODERN TECHNOLOGY.

4. MOSQUITO ORIENTED PROTECTIVE POSTURE!!!

APPLY DEET TO EXPOSED SKIN & REAPPLY AS NECESSARY



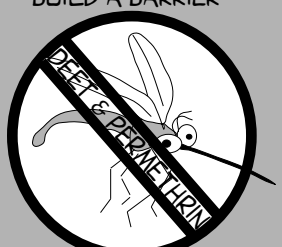
PROPERLY WORN UTILITIES SPRAYED WITH PERMETHRIN

YOUR FIRST LINE OF DEFENSE

5. OTHER IMPORTANT COUNTER MEASURES: HEADNETS - BEDNETS - MALARIA PILLS - IMMUNIZATIONS

CONSULT YOUR MEDICAL DEPARTMENT TODAY

6. BUILD A BARRIER



AGAINST BUGS!!

PREVENT MOSQUITO BITES

"AN ARMY THAT DOES NOT SUFFER FROM ONE HUNDRED DISEASES IS SAID TO BE OF CERTAIN VICTORY."

.....Sun Tzu

COPY THIS PAGE AND POST IT!

CIHL CHAT

In 1992, NEHC established the Laboratory Registered Industrial Hygienist (LRIH) program to help improve the quality of industrial hygiene samples submitted to the Consolidated Industrial Hygiene Laboratories (CIHLs). The program's goal was to establish quality assurance (QA) guidelines that would insure the validity of all industrial hygiene samples collected and submitted to the CIHLs as well as the correctness and completeness of all forms.

Quality Assurance has become a priority at BUMED. At the 35th Navy Occupational Health and Preventive Medicine Workshop, the industrial hygiene representatives from BUMED, PACFLT, and LANTFLT announced that they will be contacting each LRIH to let them know about the importance of the program.

The LRIH at each activity is responsible for providing QA on all air sample survey forms prior to sending samples to the CIHL for analysis. If the sample does not meet the criteria set forth in the Industrial Hygiene Field Operations Manual (IHFOM): 1) the usefulness of the sample in interpreting employee exposure may be adversely affected, 2) the sample may be declared invalid when challenged in a legal setting, and 3) the sample will not be useful for inclusion in the Navy's Industrial Hygiene Toxicology database.

In order to help the LRIH's with this effort, our CIHL has identified different problem areas of sample submission which affect sample validity. These problem areas and specific problems which we have seen in the past are listed below:

1. Improper form used (The NEHC forms provided in the IHFOM should be used).

a. The single stressor form is used for more than one stressor. This form should be used only for a single stressor.

b. Two different analytes which are not compatible with a single analytical method are listed on the same form.

c. Air sample survey form is used for the submission of bulk or wipe samples.

2. Return address incomplete.

a. The return address, point of contact, and phone number are incomplete or missing, especially from the second page, etc. of the sample survey form.

b. The point of contact and Commercial or DSN phone number is not listed.

3. Survey number (to include MTF UIC) is not listed. For WESTPAC commands, we track your samples by your MTF UIC. The MTF UIC is also part of your LRIH number.

4. Surveyed command UIC is not listed. For Pearl Harbor commands, we track your samples by the surveyed command UIC.

5. There is no operation code. The LRIH should verify the correctness of this code, since it is required to validate your sampling.

6. Incorrect media used to sample the requested stressor. This is a big problem. The Sampling Guide should be consulted to make sure that you are collecting the sample properly. We cannot run your samples if they are collected on the wrong media. Also, please be advised that organic vapor monitors (OVM's) are not to be used to monitor paint spray operations.

7. Samples are not properly identified. Sample numbers don't match the numbers written on the samples. The sample number is used to track your samples when you call in to inquire about them. It is suggested that you use unique sample numbers, so that they can be easily identified. The lab does not care what type of numbering system you use, as long as the sample numbers are unique.

8. Samples were not handled or shipped properly. This problem affects samples which must be removed from the sampler and shipped in a special container or in liquid media to preserve the sample from decomposition. The most common problem we have is with MCEF filters for sulfuric acid and PVC filters for hexavalent chromium, which must be removed from the cassette and shipped in glass to prevent decomposition/migration of the analyte. MCEF filters for hydroquinone must be placed in 1% acetic acid to prevent decomposition of the sample. Check the Sampling Guide for any special instructions.

9. Field blanks were not provided. We need at least one field blank (not a lab blank) with each set of samples to validate your samples. OSHA methods require 1 blank or 10% of your samples, NIOSH methods require a minimum of 2 blanks or 10% of your samples.

10. Sample duration is not listed or is calculated incorrectly. The LRIH should verify that the sample duration is calculated correctly. The CIHL will not check this. Therefore, if your time is wrong, both the volume and sample concentration will also be in error.

11. Time course of events is incomplete. The LRIH should review this to ensure that the events involved in the operation being sampled are completely documented in this section. If this section is incomplete, the lab will still process your sample, because we cannot check on this. From the legal standpoint however, completing this item properly is important to document exposure during the operation .

12. Survey form is not signed and dated by industrial hygienist. After reviewing the sample survey form for correctness, the LRIH must sign and date the form.

13. Other. We receive a lot of sample survey forms where corrections are made improperly. Corrections should be made by drawing a single

Continued on page 8

Ship's Force, Continued from page 5

(i.e., seated on deck to work bulkhead edges) had the highest exposure. These higher exposures show the need for more water to control dust when smaller pieces are being generated.

Future Follow-up / Lessons Learned

Silica has received little attention and recognition as a potential shipboard hazard, and even less as a possible carcinogen. The underlayment in this particular ship was installed twenty years ago during construction before the potential carcinogenicity of this product was recognized. We'll be sharing these results with NAVSEA and the Navy Environmental Health Center so that others involved with these types of operations will be informed of potential hazards and necessary controls. Ship's deck-covering materials should be analyzed for hazardous components prior to scheduling any removal projects. Contact your local industrial hygiene office for assistance in sample collection and submission. Identification of potential hazards like silica and asbestos will help to ensure that people are properly protected.

LCDR J. H. Erceg, MSC, USN, Industrial Hygienist

CIHL CHAT, Continued from page 7

line through the mistake, making the change, and writing your initials. Do not overwrite, scratch out, or use "white out."

We are committed to providing you the best possible service, and we welcome your questions, comments, and suggestions. If you need a copy of the CIHL Sampling Guide or the IHFOM, please contact us at:

Comm/DSN (808) 474-4428 / 474-4428
FAX:Comm/DSN (808) 474-2071 / 474-2071.

R. Ishikawa, PhD, Head, CIHL Department

Welcome Aboard!

HMC Philip Crouch, Fleet Hospital Ops & Trng Command, Camp Pendleton, CA

HMC Thomas McMillan, NSHS, San Diego, CA, Oakland Detachment

Fair Winds and Following Seas!

HM1 Tammy Null, Transferred to USNR

Did You Know?

Some component parts of the Hypodermic Jet Injection apparatus (PED-O-JETs) are assigned National Stock Numbers (NSN) while other parts must be ordered directly from the company. If the company listed on your owners manual has moved or gone out of business, one source for non-NSN parts is:

RIVERSIDE MEDICAL
15 NEWBY AVE
WEST PATTERSON NJ 07424

PHONE: (201) 345-0136 FAX: (201) 345-2565

HM2 K. Tobin, Epidemiology Department

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Navy Environmental & Preventive Medicine Unit No.Six

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